U.S. Department of Energy
Office of River Protection
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

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11-ESQ-303

Ms. Jane A. Hedges, Program Manager
Nuclear Waste Program
Washington State
Department of Ecology
3100 Port of Benton Blvd.
Richland, Washington 99354

Dear Ms. Hedges:

SUBMITTAL OF SUPPLEMENTAL INFORMATION FOR DOUBLE-SHELL TANK (DST) SYSTEM AND 204-AR WASTE UNLOADING STATION

References:
1. ORP letter from R. J. Schepens to M. A. Wilson, Ecology, "Submittal of Revision 1 of the Hanford Facility Dangerous Waste Part B Permit Application for the Double-Shell Tank (DST) System," 05-ED-102, dated December 19, 2005.

2. ORP letter from S. J. Olinger to J. Hedges, Ecology, "Submittal of Revision 1B of the Hanford Facility Dangerous Waste Part B Permit Application for the Double-Shell Tank (DST) System," 07-ESQ-066, dated May 9, 2007.

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The U.S. Department of Energy, Office of River Protection, and Washington River Protection Solutions LLC have worked with the Washington State Department of Ecology for the past several months to resolve comments related to the DST System and 204-AR Waste Unloading Station permitting documentation. Consistent with the discussions and results of these workshops, the attachments contain supplemental information and proposed revisions to language submitted in the DST System Part B Permit Application. Attachment 1 provides text revisions and Attachment 2 provides a revised inspection schedule.

If you have any questions, please contact either of us, or your staff may contact Lori A. Huffman, Director, Environmental Compliance Division, (509) 376-0104.

Sincerely,

Charles G. Spencer
President and project Manager
Washington River Protection Solutions LLC

Scott L. Samuelson, Manager
Office of River Protection

ESQ:GMN

Attachments: (2)

cc w/attachs:
J. J. Lyon, Ecology
R. R. Skinnarland, Ecology
C. L. Whalen, Ecology
K. F. Wold-Fineberg, Ecology
J. W. Donnelly, WRPS
Environmental Portal, LMSI
TPA Administrative Record (S-2-4)
WRPS Correspondence

Attachment 1
11-ESQ-303
(15 Pages)

Double-Shell Tank System Errata Sheets

ERRATA SHEET

Part III, Operating Unit Group 12 Double-Shell Tank System		
Permit Application Chapter (draft Permit Addendum and Section)	**Current Language**	**Proposed Revised Language**
Chapter 6, Procedures to Prevent Hazards (Addendum E/Security/Section E.1.1)	Personnel must be authorized for entry into DST System controlled access areas by the Tank Farm Operations shift manager or operations engineer on duty. Once approval is received, keys are issued through the 200 Area East/West key custodians. Key control custodians log in/out all requests for keys. Foreign Nationals are not allowed to possess keys to the DST System.	Personnel must be authorized for entry into DST System controlled access areas by the Tank Farm Operations shift manager or operations engineer on duty. Once approval is received, keys are issued through the 200 Area East/West key custodians. Key control custodians log in/out all requests for keys.
Chapter 6, Procedures to Prevent Hazards (Addendum E/Security/Section E.I.2)	The warning signs are legible from a distance of 7.6 m.	The warning signs are legible from a distance of 7.6 m (25 feet).
Chapter 6, Procedures to Prevent Hazards (Addendum F/Preparedness and Prevention/Section F.1.2)	The DST farms have limited spill control kits, because the DSTs and associated ancillary equipment primarily are below ground. Spill prevention and response is integral to the work planning process. Failed contaminated equipment is wrapped in plastic as it is being removed and managed pursuant to the Contaminated Equipment Policy (DOE/RL 95-PCA-337, *Management of Contaminated Equipment at the Hanford Site*) for final disposition. In addition, spill control equipment (for organic/inorganic chemical spills) is available during the operation to facilitate cleanup in the event of a spill. Spill control equipment includes absorbent material, dike material, and protective gloves/clothing.	The DST farms have limited spill control kits, because the DSTs and associated ancillary equipment primarily are below ground. Spill prevention and response is integral to the work planning process. In addition, spill control equipment (for organic/inorganic chemical spills) is available during operations to facilitate cleanup in the event of a spill. Spill control equipment includes absorbent material, dike material, and protective gloves/clothing.

Chapter 6, Procedures to Prevent Hazards (Addendum F/Preparedness and Prevention/Section F.2.1)	Leak detection: • Primary tank level monitors • Annulus tank leak detection (conductivity probes or ENRAFs) • Pit leak detectors • Transfer piping encasement leak detectors	Leak detection: • Primary tank level monitors • Annulus tank leak detection (ENRAFs) • Pit leak detectors
Chapter 6, Procedures to Prevent Hazards (Addendum F/Preparedness and Prevention/Section F.2.2 & F.2.2.1)	F.2.2 Interlock Systems The DST transfer pump master pump shut down system (MPSS) consists of interposing relays, hand switches (pushbuttons), transfer pump motor starter contactors, remote alarms, pump control circuitry, and MPSS control circuitry. The MPSS receives input signals from the Transfer Leak Detection System (TLDS) and Service Water Pressure Detection System (SWPDS). The MPSS provides automatic pump shutdown by opening a shutdown/permissive contact in the transfer pump motor control circuit. The transfer pump motor control circuitry feeds power to the contactor coil. When the MPSS relay contact opens in the motor contactor coil circuit, power to the contactor coil is interrupted causing the contactor contacts to open. When the contactor opens, power is disconnected to the pump motor. A number of interposing relays exist between the initiating device and the relay contact in the transfer pump control circuit. Shutdown action can be initiated in one of two ways: one automatic and one manual. Automatic actuation is initiated from a contact opening in either the TLDS indicating a transfer system leak or the SWPDS indicating a misroute. Manual initiation is from actuation of a hand switch (pushbutton) by an operator in response to a TLDS or SWPDS alarm. In both of these cases, power to a normally energized coil on an MPSS relay is interrupted causing the relay contacts to open. The MPSS circuitry is arranged such that power to all associated pump	F.2.2 Interlock Systems and Manual Transfer Shutdown In order to prevent a release to the environment, a manual shutdown process is implemented during DST transfers. A transfer shutdown criteria list is established for each transfer. The transfer shutdown criteria list the situations where a Nuclear Chemical Operator (NCO) must manually shutdown the transfer pumps. During a transfer a NCO is stationed at a Human Machine Interface (HMI) screen. The HMI monitors the transfer route and annunciates in the event of an alarm. The NCO monitors the operation of the transfer system and compares it to the transfer shutdown criteria. If a leak detector is alarming in the process route, then the pump shutdown button is pressed to shutdown operation of the transfer pump. This stops active flow in the transfer system. F.2.2.1 Pressure and Limit Switches Pressure switches are used in flush pits where raw water is supplied for tank farm use. The isolation valves to the pressure switches are open only when raw water is required for flushing the transfer line. Excessive pressure at the switch may indicate backflow of radioactive waste into the raw water supply. The switch prevents contamination of the Raw Water System by providing an alarm or by de-energizing the associated waste transfer pumps. Operation of waste

	motor contactor coil(s) is interrupted, removing the motive force from the pump(s). Certain tank farm equipment (e.g., some waste transfer pumps and heating, ventilation, and cooling [HVAC] fans) is interlocked to provide an automatic response to abnormal conditions and to protect personnel, equipment, and the environment. For example, many of the tank farm transfer pumps are interlocked to the Leak Detection System via the MPSS and are designed to shut down when a leak is detected in a process pit or in a transfer line encasement. Pump shutdown interlock sequences are related to various sources, including leak detectors, flush line limit, and pressure switches. In addition, pumps may be equipped with their own internal circuitry to shut down the pump upon detection of abnormal operations (e.g., when the pump motors draw unusually high or low amperage). Most transfer pumps in the 200 East Area DSTs are interlocked to shut down together if any of the following occur: • Any one of the MPSS switches in the 242 A Evaporator control room is activated • A leak is detected in any tank farm valve pit or pump pit. If any one of the process pit leak detector relays is activated because of a leak or circuit failure, the interlock relay will activate and send a "fail" signal to three locations. The first signal activates the leak detection alarm for the process pits in the control room. The second signal is sent to the leak detector transmitter	transfer pumps is not allowed during line-flushing operations. Pressure switches are mounted at strategic locations within the flush pit to sense line pressure fluctuations.

	in the instrument building. The third signal is designed to activate the MPSS relay if a leak is detected or a detector fails and trips other interlocks stopping the pumps. A description of the interlocks and switches is provided in the following paragraphs. F.2.2.1 Pressure and Limit Switches Pressure switches are used in flush pits where raw water is supplied for tank farm use. The isolation valves to the pressure switches are open only when raw water is required for flushing the transfer line. Excessive pressure at the switch may indicate backflow of radioactive waste into the raw water supply. The switch prevents contamination of the Raw Water System by providing an alarm or by de energizing the associated waste transfer pumps via the MPSS. Operation of waste transfer pumps is not allowed during line flushing operations. Pressure switches are mounted at strategic locations within the flush pit to sense line pressure fluctuations. The pressure switch is connected to the MPSS, which shuts down the transfer pump when the pressure switch set point is exceeded.	
Chapter 6, Procedures to Prevent Hazards (Addendum F/Preparedness and Prevention/Section F.2.2.2)	F.2.2.2 Heating, Ventilation, and Air Conditioning Interlocks Most exhaust fans are interlocked to shut down if the exhaust stack continuous air monitor units detect high levels of radioactive particulate in the primary exhaust stream. Additionally, high differential pressure on the first high-efficiency particulate air (HEPA) stage or low differential pressure on the last HEPA stage will initiate a ventilation system shutdown in some tank farm configurations.	~~F.2.2.2 Heating, Ventilation, and Air Conditioning Interlocks~~ ~~Most exhaust fans are interlocked to shut down if the exhaust stack continuous air monitor units detect high levels of radioactive particulate in the primary exhaust stream. Additionally, high differential pressure on the first high-efficiency particulate air (HEPA) stage or low differential pressure on the last HEPA stage will initiate a ventilation system shutdown in some tank farm configurations.~~ **(Section deleted based on planned upgrade activity that did not occur)**
Chapter 6, Procedures to Prevent Hazards	F.2.3 Prevention of Contamination of Water Supplies	F.2.3 Prevention of Contamination of Water Supplies

(Addendum F/Preparedness and Prevention/Section F.2.3)	The DST System is equipped with secondary containment to collect and detect any leaks or spills from the Primary Containment System. Any waste leaks or accumulated precipitation are removed from the DST System as soon as practicable. Reduced pressure backflow preventers or pressure switches are installed on tank farm service pit piping to prevent contamination of raw water supplies during flushing operations.	The DST System is equipped with secondary containment to collect and detect any leaks or spills from the Primary Containment System. Any waste leaks or accumulated precipitation are removed from the DST System as soon as practicable.
Chapter 6, Procedures to Prevent Hazards (Addendum F/Preparedness and Prevention/Section F.2.5)	F.2.5 Control of Air Emissions The Permittees has programs and procedures to anticipate, evaluate, recognize, and control hazardous air emissions to ensure the health and safety of the workers and public. The Permittees operates a work planning process and an industrial hygiene program that address chemical releases. During the work planning process, potential releases and personnel exposure are evaluated and appropriate controls are specified based on the nature of the work to be completed. The Permittees hierarchy of controls used in designing hazard mitigation is engineering the work to eliminate the hazard, administratively limiting exposure to hazards, and assigning personal protective equipment. The work control procedure planning process, through the Hazards Review Template, specifies industrial hygiene monitoring required during the actual work. When industrial hygiene monitoring is required, an industrial hygienist will develop a monitoring and sample strategy to provide direction to Permittees industrial hygiene technicians. These strategies provide written direction and supplemental industrial hygiene monitoring information on topics such as the following: • Constituents to be monitored • Action limits for the monitored constituents	F.2.5 Control of Air Emissions The Permittees has programs and procedures to anticipate, evaluate, recognize, and control hazardous air emissions to ensure the health and safety of the workers and public. The Permittees operates a work planning process and an industrial hygiene program that address chemical releases. During the work planning process, potential releases and personnel exposure are evaluated and appropriate controls are specified based on the nature of the work to be completed. The Permittees hierarchy of controls used in designing hazard mitigation is engineering the work to eliminate the hazard, administratively limiting exposure to hazards, and assigning personal protective equipment. The work control procedure planning process specifies industrial hygiene monitoring required during the actual work. When industrial hygiene monitoring is required, an industrial hygienist will develop a monitoring and sample strategy to provide direction to Permittees industrial hygiene technicians.

	• Instrumentation needed to perform the required monitoring • Location of potential sources of vapor releases • Frequency of work area air monitoring • Number and type of personal samples to collect • Additional environmental air monitoring requirements. The industrial hygiene program also works with Operations and Engineering to evaluate the performance of ventilation and other equipment in the tank farms. These activities include the following: • Establishing administrative controls to prevent employee exposures (air monitoring zones) • Identifying sources of vapor emissions in ventilation equipment • Determining which system components may require additional maintenance to prevent vapor emissions. The industrial hygiene program also periodically evaluates personnel exposures by conducting employee exposure assessments of routine work activities to ensure that exposures do not exceed established limits. Industrial hygiene monitoring can use a variety of methods and monitoring equipment that change as technology improves. Currently monitoring and monitoring equipment includes the following: • Photo ionization detectors (detection limits in the parts per billion range) • Flame ionization detectors (detection limits in the parts per million range) • Colorimetric detectors • Electrochemical sensors (detection limits in the	

	parts per million range) • Industrial hygiene sampling media for specific constituents (active and passive sampling media) • U.S. Environmental Protection Agency type canister samplers (used for tank headspace, area, and personal samples). The above programmatic items have been incorporated into specific plans and procedures that describe various activities and specific actions associated with prevention and monitoring of chemical releases. Specific items covered in these plans and procedures include the following: • Descriptions of tank farm work activities (includes work control steps, work categories, and the integration of safety and health controls) • Steps used to evaluate hazards (includes fires; explosions; chemical agents; biological, ergonomic, and physical agents; and other industrial safety hazards) • Selection and limitations of safety equipment • Training • Monitoring (medical, work area, and environmental) • Contamination prevention and a description of different types of decontamination • Work site control • Emergency response. Procedures are in place to identify, evaluate, report, and track nuclear safety (NUC) and worker safety and health (WSH) non-compliance and associated corrective actions. Issues are tracked through the current Corrective Action Tracking System.	
Chapter 6, Procedures to	Inspection summary items for the DST System may	Inspection documentation for the DST System may

Prevent Hazards (Addendum I/Inspection Plan/Section I.1)	include the following for meeting WAC 173-303 requirements: • Preventive Maintenance and Calibration data sheets • Tank Farm Operations round sheets • Tank Farm Operations procedures • Alarm summary logbooks • Tank farm discrepancy reports • Tank farm equipment/anomaly reports • 200 East Area Shift Manager daily logbooks The DST System Operating Record is located in the 272-AW Building in the 200 East Area, and the Records Holding Area of the 720 Building in Richland, and the Federal Records Center in Seattle, Washington. Information entered into the DST System Operating Record progresses through the 272-AW Buildings, to the 720 Building, and finally to the Federal Records Center for long-term storage. The owner or operator must remedy any problems revealed by the inspection, on a schedule that prevents hazards to the public health and environment. Where a hazard is imminent or already has occurred, remedial action must be taken immediately.	include the following for meeting WAC 173-303-320 requirements: • Preventive Maintenance and Calibration data sheets • Tank Farm Operations round sheets • Tank Farm Operations procedures • Tank farm equipment/anomaly reports • Shift Manager daily logbooks The DST System Operating Record is managed in accordance with WAC 173-303-380 "Facility Recordkeeping". DST in-process records are generated and stored in the 200 East and 200 West Areas. Final Records are stored in the Integrated Document Management System (IDMS) (through scanning the hard copy records), Records Holding Area at 940 Northgate Richland, WA and/or the Federal Records Center in Seattle, WA." The owner or operator must remedy any problems revealed by the inspection, on a schedule that prevents hazards to the public health and environment. Where a hazard is imminent or already has occurred, remedial action must be taken immediately.
Chapter 6, Procedures to Prevent Hazards (Addendum I/Inspection Plan/Section I.5)	I.5 Schedule for Remedial Action for Problems Revealed Deficiencies identified during inspections are reported to the operations shift manager. The shift manager determines the priority of reported deficiencies and schedules corrective action to ensure health risks to personnel are minimized and the integrity of waste management units is maintained. Immediate response is taken when a deficiency is discovered that poses a hazard to human health or the environment (e.g., spray leaks, aboveground spills).	I.5 Schedule for Remedial Action for Problems Revealed Deficiencies identified during inspections are reported to the operations shift manager. Once the deficiency has been identified and reported, the facility has developed a work control process that determines the priority of reported deficiencies and schedules corrective action to ensure health risks to personnel are minimized and the integrity of waste management units is maintained. Immediate response is taken when a deficiency is discovered that poses a hazard to human

	Response actions will comply with requirements of WAC 173 303 640(7). In emergencies, responses are in accordance with the contingency plan requirements and/or Addendum J, the emergency pumping guide.	health or the environment (e.g., spray leaks, aboveground spills). Response actions will comply with requirements of WAC 173 303 640(7). In emergencies, responses are in accordance with the contingency plan requirements and/or Addendum J, the emergency pumping guide.
Chapter 6, Procedures to Prevent Hazards (Addendum I/Inspection Plan/Section I.6.2)	I.6.2 Computer Based Monitoring System The TMACS provides real time monitoring of most DSTs. Parameters monitored include tank liquid levels, tank pressures, ventilation flows, tank thermocouple temperature readings, and other operational field equipment. Examples of alarms received from the field include high liquid levels, high or low pressure, and high and low temperature. Alarms produced by the TMACS are monitored by TMACS operators continuously 24 hours a day, 7 days a week to determine whether any off normal conditions exist. These data are automatically entered into the personal computer Surveillance Analysis Computer System and analyzed weekly by TMACS engineers for trends. For example, many variables, such as changes in barometric pressure, ambient temperature, and tank ventilation, may impact waste volume measurements. Because of these variables, personnel may take several measurements over time to positively determine whether a small tank leak is occurring. Trend analysis is the best way to overcome limitations in available monitoring techniques. Not all alarms are monitored by the TMACS; some are monitored in field. Field data are gathered daily (during operator rounds) by tank farm operators and reviewed for off normal conditions by the shift managers.	I.6.2 Computer Based Monitoring System The Tank Monitor and Control System (TMACS) and the Tank Farm Monitoring and Control System (TFMCS) are both utilized by Base Operations to monitor tank farm data. Both the TFMCS and TMACS systems provide real time monitoring for the DST System. Parameters monitored include tank liquid levels, tank pressures, ventilation flows, tank thermocouple temperature readings, transfer leak detection, and other operational field equipment. Examples of alarms received from the field include high-liquid levels, high or low pressure, and high and low temperature. Alarms produced by the TFMCS/TMACS are monitored to determine whether any off-normal conditions exist. These data are automatically entered into the personal computer Surveillance Analysis Computer System and analyzed by Base Operations engineers for trends. Trend analysis is the best way to overcome limitations in available monitoring techniques. Not all alarms are monitored by the TFMCS/TMACS; some are monitored in-field. Field data are gathered daily (during operator rounds) by tank farm operators and reviewed for off-normal conditions by the shift managers. Data gathered in-field and by the TFMCS/TMACS are

	Data gathered in field and by the TMACS are analyzed after collection to track systems together.	analyzed after collection to track systems together.
Chapter 6, Procedures to Prevent Hazards (Addendum I/Inspection Plan/Section I.6.3)	I.6.3 Leak Detection Leak detection for most of the tank systems consists of three annulus leak detection probes within the annulus of each DST, at least one in-tank surface level monitor within the primary tank, and transfer pit leak detection (see Addendum C1 for details). Tank Farms 241-AY, -AZ, and -SY are the exceptions in that the annulus probes have been totally replaced with Enraf level monitors.	I.6.3 Leak Detection Leak detection for the DST System is monitored through the use of ENRAFs.
Chapter 6, Procedures to Prevent Hazards (Addendum I/Inspection Plan/Section I.6.4)	I.6.4 Inspection of Aboveground Portions of the Tank System The cover blocks and upper portion of the pits are the only portion of the DST System that are aboveground. Tank Farm Operations personnel are responsible for inspecting the aboveground portions of the DST System for signs of damage and releases of waste, and for inspecting the surrounding area for spills.	I.6.4 Inspection of Aboveground Portions of the Tank System The cover blocks, tank risers and upper portion of the pits are the only portion of the DST System that are aboveground. Tank Farm Operations personnel are responsible for inspecting the aboveground portions of the DST System for signs of damage and releases of waste, and for inspecting the surrounding area for spills.
Chapter 6, Procedures to Prevent Hazards (Addendum I/Inspection Plan/Section I.6.5)	I.6.5 General Testing and Maintenance Testing and maintenance of emergency equipment are accomplished through several different Tank Farm Contractor (TFC) procedures.	I.6.5 General Testing and Maintenance Testing and maintenance of emergency equipment are accomplished through several different Tank Farm Operations (TOC) procedures.
Chapter 6, Procedures to Prevent Hazards (Addendum I/Inspection Plan/Section I.6.5.1)	I.6.5.1 Alarm Panel Inspections Tank Farm Operations personnel are responsible for testing and recording the alarm status at the DST System, including tank farm instrument buildings and the 242-S Evaporator control room. Daily inspections of the alarm panels are performed. Record of new alarms is kept in the Tank Farm Operations round sheets and the alarm summary logbooks. Notification of all	I.6.5.1 Alarm Panel Inspections Tank Farm Operations personnel are responsible for testing and recording the alarm status at the DST System, including tank farm instrument buildings and the 242-S Evaporator control room. Daily inspections of the alarm panels are performed. Record of new alarms is kept in the Tank Farm Operations round sheets. Notification of all activated alarms to the

	activated alarms to the operations shift manager ensures appropriate corrective actions are taken to eliminate the alarming condition.	operations shift manager ensures appropriate corrective actions are taken to eliminate the alarming condition.
Chapter 6, Procedures to Prevent Hazards (Addendum I/Inspection Plan/Section I.6.5.2)	I.6.5.2 Cathodic Protection Systems Active DST waste transfer lines have cathodic protection. Inspection and testing of the cathodic protection system includes bimonthly inspection of the rectifiers and annual testing at test stations. Table I-2 list the cathodic protection rectifiers within the DST System.	I.6.5.2 Cathodic Protection Systems Inspection and testing of the cathodic protection system includes bimonthly inspection of the rectifiers and annual testing at test stations. Table I-2 list the cathodic protection rectifiers within the DST System.
Chapter 6, Procedures to Prevent Hazards (Addendum I/Inspection Plan/Section I.6.6 & I.6.6.1)	I.6.6 Tank Systems – Responses to Leaks and Spills Unless the owner or operator satisfies the following requirements [WAC 173 303 640(7)], the tank system must be closed in accordance with WAC 173-303-610 and Addendum H. • If the cause of the release was a spill that has not damaged the integrity of the system, the owner or operator may return the system to service as soon as the released waste is removed and repairs, if necessary, are made. • If the cause of the release was a leak from the Primary Tank System into the Secondary Containment System, the system must be repaired before returning the tank system to service. • If the source of the release was a leak to the environment from a component of a tank system without secondary containment, the component of the system from which the leak occurred will be upgraded with secondary containment that satisfies the WAC 173 303 640(4) requirements before it can be returned to service. The exception would be if the source of the leak is an aboveground portion of a tank system that can be inspected visually. If	~~I.6.6 Tank Systems – Responses to Leaks and Spills~~ ~~Unless the owner or operator satisfies the following requirements [WAC 173 303 640(7)], the tank system must be closed in accordance with WAC 173-303-610 and Addendum H.~~ ~~• If the cause of the release was a spill that has not damaged the integrity of the system, the owner or operator may return the system to service as soon as the released waste is removed and repairs, if necessary, are made.~~ ~~• If the cause of the release was a leak from the Primary Tank System into the Secondary Containment System, the system must be repaired before returning the tank system to service.~~ ~~• If the source of the release was a leak to the environment from a component of a tank system without secondary containment, the component of the system from which the leak occurred will be upgraded with secondary containment that satisfies the WAC 173 303 640(4) requirements before it can be returned to service. The exception would be if the source of the leak is an aboveground portion of a tank system that can be~~

	the source is an aboveground component that can be inspected visually, the component must be repaired and may be returned to service without secondary containment as long as the requirements of WAC 173 303 640(7)(f) are satisfied. If a component is replaced to comply with the applicable requirements, that component must satisfy the requirements for new tank systems or components in subsections WAC 173 303 640 (3) and (4). Additionally, if a leak has occurred in any portion of a tank system component that is not readily accessible for visual inspection (e.g., the bottom of an in ground or on ground tank), the entire component must be provided with secondary containment in accordance with subsection WAC 173 303 640 (4) before being returned to use. In the event of a leak of waste from primary tank piping into the Secondary Containment System during a waste transfer, the following actions are planned. • The flow of waste into the tank system will be stopped by shutting down transfer pumps either automatically through alarm interlocks or manually at the motor control centers. • Waste will be removed from the Secondary Containment System as soon as practicable. Transfer pipes and their encasements are sloped to drain to diversion boxes, pits, and catch tanks. The collected waste can be pumped to a DST. In the event of a leak of waste from the primary tank of a DST to its annulus, the following actions are planned. • If a waste transfer is in progress, the flow of waste into the tank will be stopped by shutting down	~~inspected visually. If the source is an aboveground component that can be inspected visually, the component must be repaired and may be returned to service without secondary containment as long as the requirements of WAC 173 303 640(7)(f) are satisfied. If a component is replaced to comply with the applicable requirements, that component must satisfy the requirements for new tank systems or components in subsections WAC 173 303 640 (3) and (4). Additionally, if a leak has occurred in any portion of a tank system component that is not readily accessible for visual inspection (e.g., the bottom of an in ground or on ground tank), the entire component must be provided with secondary containment in accordance with subsection WAC 173 303 640 (4) before being returned to use.~~ ~~In the event of a leak of waste from primary tank piping into the Secondary Containment System during a waste transfer, the following actions are planned.~~ ~~• The flow of waste into the tank system will be stopped by shutting down transfer pumps either automatically through alarm interlocks or manually at the motor control centers.~~ ~~• Waste will be removed from the Secondary Containment System as soon as practicable. Transfer pipes and their encasements are sloped to drain to diversion boxes, pits, and catch tanks. The collected waste can be pumped to a DST.~~ ~~In the event of a leak of waste from the primary tank of a DST to its annulus, the following actions are planned.~~ ~~• If a waste transfer is in progress, the flow of waste~~

	transfer pumps automatically through alarm interlocks or manually at the motor control centers. • The waste in the primary tank will be pumped to another DST until the liquid level in the annulus is no longer increasing. At this point, the waste level in the primary tank has been lowered below the level of the leak. Waste from the annulus will be pumped back to the primary tank or to an alternate DST, keeping the waste level lower than the level of the leak. Once the DST is pumped to a level below that of the leak, acceptable double containment has been provided, and the tank continues temporary operation (DOE O 435.1, Radioactive Waste Management). Reparation to restore the tank to its original operational capacity will be assessed as part of corrective measures. • Tanks that develop leaks at or near the tank bottom may require saltwell jet pumping to remove trapped liquids from between solid layers in the tank. All visible releases to the environment will be contained and any non exempted leak or spill will be reported. Major repairs (e.g., installation of an internal liner, repair of a ruptured primary containment or secondary containment tank), will be certified by an independent, qualified, registered, professional engineer in accordance with WAC 173 303 640(7)(f) before returning the tank system to service. I.6.6.1 General Strategy for Immediate Removal of Dangerous Waste In the event that a DST System is found to be "unfit for use," immediate steps may taken to remove tank waste and interim closure steps taken as deemed necessary.	~~into the tank will be stopped by shutting down transfer pumps automatically through alarm interlocks or manually at the motor control centers.~~ ~~• The waste in the primary tank will be pumped to another DST until the liquid level in the annulus is no longer increasing. At this point, the waste level in the primary tank has been lowered below the level of the leak. Waste from the annulus will be pumped back to the primary tank or to an alternate DST, keeping the waste level lower than the level of the leak. Once the DST is pumped to a level below that of the leak, acceptable double containment has been provided, and the tank continues temporary operation (DOE O 435.1, Radioactive Waste Management). Reparation to restore the tank to its original operational capacity will be assessed as part of corrective measures.~~ ~~• Tanks that develop leaks at or near the tank bottom may require saltwell jet pumping to remove trapped liquids from between solid layers in the tank.~~ ~~All visible releases to the environment will be contained and any non exempted leak or spill will be reported.~~ ~~Major repairs (e.g., installation of an internal liner, repair of a ruptured primary containment or secondary containment tank), will be certified by an independent, qualified, registered, professional engineer in accordance with WAC 173 303 640(7)(f) before returning the tank system to service.~~ ~~I.6.6.1 General Strategy for Immediate Removal of Dangerous Waste~~

Prevent Hazards (Addendum I/Inspection Plan/Table I-2)		
(Addendum M/Waste Transfer Operating Conditions/Section M.1)	M.1 INITIAL CONFIGURATION (PRESTARTUP) Prestartup conditions must be verified before waste transfer is begun. The Permittee must verify the operating procedures are listed below: • Verify the proper valve alignment for the waste transfer mode • Verify the leak detection functionality • Verify that the electrical distribution, instrument air, and master pump shutdown system support systems are operable.	M.1 INITIAL CONFIGURATION (PRESTARTUP) Prestartup conditions must be verified before waste transfer is begun. The Permittee must verify the operating procedures are listed below: • Verify the proper valve alignment for the waste transfer mode • Verify the leak detection functionality • Verify that the electrical distribution and instrument air support systems are operable.
(Addendum M/Waste Transfer Operating Conditions/Section M.3)	M.3 OFF NORMAL OPERATIONS Two conditions are considered for off normal operations: • Recovery of liquids from the sump area of either the diversion box or the vent station after a leak is detected. The master pump shutdown assists the pumping operation for recovery of liquid into the supernatant line • For slurry transfers, the operations of a standby booster pump should the primary booster pump malfunction.	M.3 OFF NORMAL OPERATIONS One condition is considered for off normal operations: Recovery of liquids from the sump area of either the diversion box or the vent station after a leak is detected. To assist with this, an operator monitors for leaks via a Human Machine Interface (HMI) system. This system monitors the transfer route and annunciates in the event of an alarm alerting operations to shutdown the transfer.

Attachment 2
11-ESQ-303
(17 Pages)

Addendum I Inspection Plan and
Table I-1 Tank Farm General Environmental Inspections

ADDENDUM I INSPECTION PLAN

I. INSPECTION PLAN

This section describes the method and schedule for the inspections of the DST System. These inspections help ensure that situations do not exist that might cause or lead to a release of mixed waste that could pose a threat to human health or the environment.

I.1 General Inspection Requirements/Inspection Summary

In accordance with WAC 173-303-320, "the owner or operator must inspect the facility to prevent malfunctions and deterioration, operator errors, and discharges that may cause or lead to the release of dangerous waste constituents..." Additionally, the owner or operator must develop a written schedule for inspecting all monitoring equipment, safety and emergency equipment security devices, and operating and structural equipment that help prevent, detect, or respond to hazards to the public health or the environment. Inspection schedules for the six DST farms must meet the following requirements:

- Be kept at the facility (copies are maintained as part of the facility operating record)
- Identify the types of problems that are to be looked for during inspections
- Indicate the frequency of inspection for specific items.

Unless otherwise specified by the regulations, frequencies typically are based on the rate of possible deterioration of equipment, and the probability of an environmental or human health incident. Areas subject to spills must be inspected daily when in use.

The owner or operator must keep an inspection log or summary, and it must be kept at the facility for a minimum of 5 years and include the following at a minimum:

- Date and time of the inspection
- Printed name and the handwritten signature of the inspector
- Notation of the observations made and an account of spills or discharges in accordance with WAC 173-303-145
- Date and nature of any repairs or remedial actions taken.

Inspection documentation for the DST System may include the following for meeting WAC 173-303-320 requirements:

- Preventive Maintenance and Calibration data sheets
- Tank Farm Operations round sheets
- Tank Farm Operations procedures
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- Tank farm equipment/anomaly reports
- Shift Manager daily logbooks

The DST System Operating Record is managed in accordance with WAC 173-303-380 "Facility Recordkeeping". DST in-process records are generated and stored in the 200 East and 200 West Areas. Final Records are stored in the Integrated Document Management System (IDMS) (through scanning the hard copy records), Records Holding Area at 940 Northgate Richland, WA and/or the Federal Records Center in Seattle, WA."

The owner or operator must remedy any problems revealed by the inspection, on a schedule that prevents hazards to the public health and environment. Where a hazard is imminent or already has occurred, remedial action must be taken immediately.

I.2 Conditions and Problems Sought During Inspections

General and DST System-specific inspections include, but are not limited to; the following:

- Overfill controls
- Aboveground portions of the tank system, if any, to detect corrosion or releases of waste
- Data gathered from monitoring any leak detection equipment (e.g., pressure or temperature gauges, monitoring wells) to ensure that the tank system is being operated according to its design
- The construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the Secondary Containment System (e.g., dikes) to detect erosion or signs of releases of dangerous waste (e.g., wet spots, dead vegetation)
- The owner or operator must inspect Cathodic Protection Systems (CPS), if present, according to, at a minimum, the following schedule to ensure that they are functioning properly
    - The proper operation of the CPS must be confirmed within 6 months after initial installation and annually thereafter
    - All sources of impressed current must be inspected and/or tested, as appropriate, at least bimonthly (i.e., every other month).

I.3 General Testing and Maintenance

In accordance with WAC 173-303-340(1)(d), all facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, must be tested and maintained as necessary to ensure its proper operation in time of emergency.

I.4 Inspection Frequencies

Unless otherwise specified by regulations, frequencies typically are based on the rate of possible deterioration of equipment, and the probability of an environmental or human health incident. Areas subject to spills must be inspected daily when in use.

I.5 Schedule for Remedial Action for Problems Revealed

Deficiencies identified during inspections are reported to the operations shift manager. Once the deficiency has been identified and reported, the facility has developed a work control process that determines the priority of reported deficiencies and schedules corrective action to ensure health risks to personnel are minimized and the integrity of waste management units is maintained. Immediate response is taken when a deficiency is discovered that poses a hazard to human health or the environment (e.g., spray leaks, aboveground spills).

Response actions will comply with requirements of WAC 173-303-640(7). In emergencies, responses are in accordance with the contingency plan requirements and/or Addendum K, Contingency Plan.

I.6 Tank System Inspections and Corrective Actions

The following sections describe the schedules and processes for inspection of waste tank overfill controls, including the aboveground portions of the DSTs, and data from waste tank system leak detection devices, CPSs, and corrective actions in response to waste in secondary containment during waste transfers.

I.6.1 Overflow Control

The DST liquid levels are kept below maximum limits to prevent overfilling and/or over-stressing of the tanks due to increased hydrostatic head. A minimum liquid level also is maintained in the DSTs to provide protection against any uplift of the steel liner. Each is equipped with a level-sensing device (Enraf[1] level monitor) and manual tape for measuring tank liquid level (see Addendum C, Process Information). Liquid levels either are monitored automatically from the Computer-Based Monitoring System or are obtained manually in the field. If the level-sensing device is out of service, manual tape is used to obtain a liquid level. Field operators enter non-automated readings obtained from the field manually into the Surveillance Analysis Computer System. These readings are entered daily directly into Surveillance Analysis Computer System by surveillance personnel.

During waste transfers, tank liquid levels are monitored at a frequency specified in a waste transfer procedure. In the event of a high-level detection, the transfer is stopped manually from the motor control center.

I.6.2 Computer-Based Monitoring System

The Tank Monitor and Control System (TMACS) and the Tank Farm Monitoring and Control System (TFMCS) are both utilized by Base Operations to monitor tank farm data.

Both the TFMCS and TMACS systems provide real time monitoring for the DST System. Parameters monitored include tank liquid levels, tank pressures, ventilation flows, tank thermocouple temperature readings, transfer leak detection, and other operational field equipment. Examples of alarms received from the field include high-liquid levels, high or low

[1] Enraf is a registered trademark of Enraf B. V., Delft, The Netherlands.

pressure, and high and low temperature. Alarms produced by the TFMCS/TMACS are monitored to determine whether any off-normal conditions exist. These data are automatically entered into the personal computer Surveillance Analysis Computer System and analyzed by Base Operations engineers for trends. Trend analysis is the best way to overcome limitations in available monitoring techniques.

Not all alarms are monitored by the TFMCS/TMACS; some are monitored in-field. Field data are gathered daily (during operator rounds) by tank farm operators and reviewed for off-normal conditions by the shift managers.

Data gathered in-field and by the TFMCS/TMACS are analyzed after collection to track systems together.

I.6.3 Leak Detection

Leak detection for the DST System is monitored through the use of ENRAFs.

Leak detection alarms annunciate locally, at the corresponding instrument building, and are recorded on round sheets. For pit leak detection, many of the alarms are interlocked to automatically shut down transfer pumps on detection of a leak. In the event the automatic shutdown fails, or the alarm is not connected to the automatic shutdown system, the transfer is stopped manually from the motor control center.

I.6.4 Inspection of Aboveground Portions of the Tank System

The cover blocks, tank risers and upper portion of the pits are the only portion of the DST System that are aboveground. Tank Farm Operations personnel are responsible for inspecting the aboveground portions of the DST System for signs of damage and releases of waste, and for inspecting the surrounding area for spills.

I.6.5 General Testing and Maintenance

Testing and maintenance of emergency equipment are accomplished through several different Tank Operations Contractor (TOC) procedures.

I.6.5.1 Alarm Panel Inspections

Tank Farm Operations personnel are responsible for testing and recording the alarm status at the DST System, including tank farm instrument buildings and the 242-S Evaporator control room. Daily inspections of the alarm panels are performed. Record of new alarms is kept in the Tank Farm Operations round sheets . Notification of all activated alarms to the operations shift manager ensures appropriate corrective actions are taken to eliminate the alarming condition.

While alarming instruments are undergoing or awaiting repairs, the operations shift manager ensures an acceptable alternate method of monitoring is being performed when required.

I.6.5.2 Cathodic Protection Systems

Active DST waste transfer lines have cathodic protection. Inspection and testing of the cathodic protection system includes bimonthly inspection of the rectifiers and annual testing at test stations. Table I-2 list the cathodic protection rectifiers within the DST System.

Bimonthly inspections document the physical conditions and the operating parameters of the rectifiers, and identify any needed maintenance. Negative polarized potentials and negative (cathodic) polarized potentials are measured at every test station for every survey

All rectifier test stations in the DST System are located in maintenance access boxes situated below grade so traffic can pass over test stations without interference. Test stations are inspected annually to measure impressed voltage and to confirm that the system is operating correctly. Annual inspection of the CPS evaluates the cathodic protection being provided to the waste transfer piping against current National Association of Corrosion Engineer (NACE) standards.

I.6.6 Tank Systems – Responses to Leaks and Spills

I.6.6.1 General Strategy for Immediate Removal of Dangerous Waste

Table I-1 Tank Farm General Environmental Inspections

Equipment Information	Inspection	Frequency And Monitoring Duration Requirements
Tank Primary Level	Enraf	DAILY
Annulus Leak detection	Enraf	DAILY
Pits and piping	Evidence of visible waste leaks and spills to the environment (not weather related) inside the tank farm are found.	During Transfers
Waste leaks and spills All tank farms.	Evidence of visible waste leaks and spills to the environment (not weather related) inside the tank farm are found.	DAILY
Alarms panel inspections Location: 204-AR and 242-A Evaporator, Control Rooms tank farm instrument buildings.	Lit flashing alarms, alarm lamps inoperable when tested.	DAILY
Building doors and tank farm perimeter fence, 204-AR building, tank farm change trailer entrances, tank farm perimeter fence gates.	Broken locks, doors and gates in poor condition or not functioning properly, doors and gates unlocked when not staffed for access control.	DAILY
Inspection of the aboveground portion of tank systems All tank farms.	Visible damage to, or leaks from aboveground portion of Tank Farm process and support pits, diversion boxes and catch tanks.	DAILY
Lock and key control Tank Farm Shift Office.	Non-returned or missing keys, incomplete key control log entries.	DAILY

Table I-1 Tank Farm General Environmental Inspections

Equipment Information	Inspection	Frequency And Monitoring Duration Requirements
Fire Protection System: Fire suppressant and notification systems (i.e., sprinkler system and fire alarm pull boxes)	Water flow alarm tests of the sprinkler system to ensure the operation of a single sprinkler head will transmit an alarm, and that any of the manual fire alarm boxes will properly transmit an alarm signal.	ANNUALLY
Fire Protection System: Visual inspection of the physical condition of the sprinkler system, testing, and calibration of smoke detectors, and testing of heat detectors	A visual inspection of the sprinkler system to ensure system integrity as well as the required testing and calibration of detectors to ensure functionality. A flow test at the sprinkler system is performed to ensure proper flow to the system riser.	BIENNIAL
Safety showers (fixed) 204-AR Mechanical Equipment Room & balcony of Tanker Car Unloading Room, 272-AW Building	Verify Operability	MONTHLY

Table I-1 Tank Farm General Environmental Inspections

Equipment Information	Inspection	Frequency And Monitoring Duration Requirements
Tank farm fencing All tank farms, and East/ West Vent Station.	Fencing that is inadequate (fence is sagging, openings underneath or through the fencing that a person can pass through) to prevent unauthorized access.	MONTHLY
Posted "Danger-Hazardous Materials, Unauthorized Personnel Keep Out" warning signs.	Fallen or illegible warning signs,	WEEKLY
Signs should be present on all entrances into the tank farms, the East/ West Vent Station and 204-AR Building.	Signs not visible from a 25-foot distance.	
Emergency lighting At various tank farm buildings and locations	Verify Operability	MONTHLY
Emergency siren (take cover and evacuation alarms) 200 East and West area utility poles Area siren (DOE/RL-94-02 Section 11.3)	Emergency siren alarms are not sounding or inaudible in specified area when tested each month.	MONTHLY

Table I-1 Tank Farm General Environmental Inspections

Equipment Information	Inspection	Frequency And Monitoring Duration Requirements
Inspection performed by the site emergency preparedness organization and operations.		
Eye wash stations (portable and fixed) Balcony of Tanker Car Unloading Room, and the 272-AW Building.	Verify Operability Expired inspection tag.	MONTHLY
Fire extinguishers 204-AR, Tank Farm Instrument Buildings. Tank Farm Change Trailers, 272-AW, and MO-28.	Verify fire extinguishers are in their proper location	MONTHLY

Table I-1 Tank Farm General Environmental Inspections

Equipment Information	Inspection	Frequency And Monitoring Duration Requirements
Spill kits (for chemical spill) 204-AR Mechanical Equipment Room.	Verify Spill Kit is present	MONTHLY
Protective clothing 272-AW Buildings and most tank farm change trailers	Verify Availability	MONTHLY
Ignitable/ reactive waste storage inspection	Review ignitable/ reactive waste storage inspection data and perform a visual inspection. Chemicals with properties, issues and potential areas of concern are found.	ANNUALLY
Catch Tank Dip Tube System-Liquid Level, High Level Alarm: Tank 1 (AR204-WT-LI-101) Catch Tank Dip Tube System-Liquid Level, High Level Alarm is monitored at 242-A Evaporator control room.	Tank high-level alarm	DAILY

Table I-1 Tank Farm General Environmental Inspections

Equipment Information	Inspection	Frequency And Monitoring Duration Requirements
Catch Tank Sump Leak Detector: 204-ARTank 1 Catch Tank Sump Leak Detector is monitored at 242-A Evaporator control room.	Alarming Catch Tank Sump Leak Detector at monitoring locations	DAILY
Transfer Line Equipment – Conductivity Probe Leak Detector LIQW-702 Transfer Line Equipment – Conductivity Probe Leak Detector is monitored at 242-A Evaporator control rm.	Alarming Monitor Transfer Line Equipment – Conductivity Probe Leak Detector	Observable parts of the transfer line conductivity probe detector alarm systems shall be visually inspected and monitored as required by operating procedures for routine surveillance and during transfers.
Equipment -Rail Out/Tank Trailer Unloading Room Floor (UNTIL A RCRA-COMPLIANT TRANSFER LINE IS AVAILABLE LEAVING 204-AR, THIS FACILITY IS INACTIVE)	Leaks and spills in Equipment – Rail out/tank trailer unloading room floor	DAILY

Table I-1 Tank Farm General Environmental Inspections

Equipment Information	Inspection	Frequency And Monitoring Duration Requirements
241-AZ-301AZ Condensate distribution tank AZ-301-COND-TK-001 level is high (≥47.5 inches.)	241-AZ-301AZ high-high tank level detector alarming.	DAILY
241-AZ-301AZ Leak detected or trouble in leak detector circuit in AZ-301 secondary containment.	241-AZ-301AZ secondary containment leak detector alarming.	DAILY

Table I-2 Tank Farm Cathodic Protection

Equipment Information	Condition/Required Response	Inspection and Monitoring Duration Requirements
Rectifier R1 Located next to the 271-AP Instrument Building, north of AP Tank Farm fence.	CONDITION: Rectifier R1 is operational, no indication of frayed or broken wiring, leaks, gasket seal not adequate, murky oil, oil level low, incorrect tap setting. RESPONSE: No response is necessary.	Source(s) of impressed current (rectifier) are inspected bi-monthly (every other month) and the operation of the cathodic protection system (test station) is inspected annually.
Rectifier R2 Located next to the 271-AP Instrument Building, north of AP Tank Farm fence.	CONDITION: Rectifier R2 is operational, no indication of frayed or broken wiring, leaks, gasket seal not adequate, murky oil, oil level low, incorrect tap setting. RESPONSE: No response is necessary.	Source(s) of impressed current (rectifier) are inspected bi-monthly (every other month) and the operation of the cathodic protection system (test station) is inspected annually.
Rectifier 2 Located on the south side of PUREX Building against the wall north-northeast of 241-A-151	CONDITION: Rectifier 2 is operational, no indication of frayed or broken wiring, leaks, gasket seal not adequate, murky oil, oil level low, incorrect tap setting. RESPONSE: No response is necessary.	Source(s) of impressed current (rectifier) are inspected bi-monthly (every other month) and the operation of the cathodic protection system (test station) is inspected annually.
Rectifier 7 Located next to the 271-AP Instrument Building, north of AP Tank Farm fence.	CONDITION: Rectifier 7 is operational, no indication of frayed or broken wiring, leaks, gasket seal not adequate, murky oil, oil level low, incorrect tap setting. RESPONSE: No response is necessary.	Source(s) of impressed current (rectifier) are inspected bi-monthly (every other month) and the operation of the cathodic protection system (test station) is inspected annually.
Rectifier 8 Located between Buffalo Avenue and the West side of AY Tank Farm fence.	CONDITION: Rectifier 8 is operational, no indication of frayed or broken wiring, leaks, gasket seal not adequate, murky oil, oil level low, incorrect tap setting. RESPONSE: No response is necessary.	Source(s) of impressed current (rectifier) are inspected bi-monthly (every other month) and the operation of the cathodic protection system (test station) is inspected annually.

Table I-2 Tank Farm Cathodic Protection

Equipment Information	Condition/Required Response	Inspection and Monitoring Duration Requirements
Rectifier 11 Located between the parking area and West fence of AN Tank Farm.	CONDITION: Rectifier 11 is operational, no indication of frayed or broken wiring, leaks, gasket seal not adequate, murky oil, oil level low, incorrect tap setting. RESPONSE: No response is necessary.	Source(s) of impressed current (rectifier) are inspected bi-monthly (every other month) and the operation of the cathodic protection system (test station) is inspected annually.
Rectifier 13 Located rear west fence of the AN Tank Farm.	CONDITION: Rectifier 13 is operational, no indication of frayed or broken wiring, leaks, gasket seal not adequate, murky oil, oil level low, incorrect top setting. RESPONSE: No response is necessary.	Source(s) of impressed current (rectifier) are inspected bi-monthly (every other month) and the operation of the cathodic protection system (test station) is inspected annually.
Rectifier 16 Located between Buffalo Avenue and the west side of A Tank Farm fence.	CONDITION: Rectifier 16 is operational, no indication of frayed or broken wiring, leaks, gasket seal not adequate, murky oil, oil level low, incorrect tap setting. RESPONSE: No response is necessary.	Source(s) of impressed current (rectifier) are inspected bi-monthly (every other month) and the operation of the cathodic protection system (test station) is inspected annually.
Rectifier 18 Southwest outside corner of 242-A building	CONDITION: Rectifier 18 is operational, no indication of frayed or broken wiring, leaks, gasket seal not adequate, murky oil, oil level low, incorrect tap setting. RESPONSE: No response is necessary.	Source(s) of impressed current (rectifier) are inspected bi-monthly (every other month) and the operation of the cathodic protection system (test station) is inspected annually.
Rectifier 19 Located in the 271-AW Instrument Building.	CONDITION: Rectifier 19 is operational, no indication of frayed or broken wiring, leaks, gasket seal not adequate, murky oil, oil level low, incorrect tap setting. RESPONSE: No response is necessary.	Source(s) of impressed current (rectifier) are inspected bi-monthly (every other month) and the operation of the cathodic protection system (test station) is inspected annually.

Table I-2 Tank Farm Cathodic Protection

Equipment Information	Condition/Required Response	Inspection and Monitoring Duration Requirements
Rectifier 31 Located near the west side of AY Tank Farm fence.	CONDITION: Rectifier 31 is operational, no indication of frayed or broken wiring, leaks, gasket seal not adequate, murky oil, oil level low, incorrect tap setting. RESPONSE: No response is necessary.	Source(s) of impressed current (rectifier) are inspected bi-monthly (every other month) and the operation of the cathodic protection system (test station) is inspected annually.
Rectifier 36 Located southeast of 242-S Evaporator, near east side of SY Tank Farm fence.	CONDITION: Rectifier 36 is operational, no indication of frayed or broken wiring, leaks, gasket seal not adequate, murky oil, oil level low, incorrect top setting. RESPONSE: No response is necessary.	Source(s) of impressed current (rectifier) are inspected bi-monthly (every other month) and the operation of the cathodic protection system (test station) is inspected annually.
Rectifier 41	CONDITION: Rectifier 41 is operational, no indication of frayed or broken wiring, leaks, gasket seal not adequate, murky oil, oil level low, incorrect tap setting. RESPONSE: No response is necessary.	Source(s) of impressed current (rectifier) are inspected bi-monthly (every other month) and the operation of the cathodic protection system (test station) is inspected annually.
Rectifier 46 Located South of corner of 7th Street and Buffalo Avenue.	CONDITION: Rectifier 46 is operational, no indication of frayed or broken wiring, leaks, gasket seal not adequate, murky oil, oil level low, incorrect tap setting. RESPONSE: No response is necessary.	Source(s) of impressed current (rectifier) are inspected bi-monthly (every other month) and the operation of the cathodic protection system (test station) is inspected annually.
Rectifier 47 Located northeast of C Tank Farm.	CONDITION: Rectifier 47 is operational, no indication of frayed or broken wiring, leaks, gasket seal not adequate, murky oil, oil level low, incorrect tap setting. RESPONSE: No response is necessary.	Source(s) of impressed current (rectifier) are inspected bi-monthly (every other month) and the operation of the cathodic protection system (test station) is inspected annually.

Table I-2 Tank Farm Cathodic Protection

Equipment Information	Condition/Required Response	Inspection and Monitoring Duration Requirements

Enraf is a registered trademark of Enraf B. V., Delft, The Netherlands.

Resource Conservation and Recovery Act, as amended

RP-02-85, 2002, Standard Recommended Practice - Corrosion Control of Underground Storage Tank Systems by Cathodic Protection, National Association of Corrosion Engineers, www.techstreet.com/info/nace.html.

RCRA *Resource Conservation and Recovery Act*
SACS = Surveillance Analysis Computer System.
TOC = Tank Operations Contractor.
TMACS = Tank Monitor and Control System.